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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/580,427	05/30/2007	Shin-ichi Tate	ASAM.0196	2545
38327	7590	07/07/2010		
Juan Carlos A. Marquez c/o Stites & Harbison PLLC 1199 North Fairfax Street Suite 900 Alexandria, VA 22314-1437			EXAMINER SMITH, CAROLYN L	
			ART UNIT	PAPER NUMBER
			1631	
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			07/07/2010	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/580,427

**Applicant(s)**

TATE, SHIN-ICHI

**Examiner**

Carolyn Smith

**Art Unit**

1631

**Period for Reply** -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 12 April 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 72-110 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 72-78, 80-83 and 85-110 is/are rejected.
- 7) ☒ Claim(s) 79 and 84 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB-08)  
Paper No(s)/Mail Date 01142010, 12042009
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

### **DETAILED ACTION**

Applicant's amendments and remarks, filed 4/12/10, are acknowledged. Amended claims 72-73, 76, 78-79, 81-84 and new claims 85-110 are acknowledged.

Applicant's arguments, filed 4/12/10, have been fully considered. Rejections and/or objections not reiterated from the previous office actions are hereby withdrawn. The following rejections and/or objections are either reiterated or newly applied. They constitute the complete set presently being applied to the instant application.

Claims 72-110 are herein under examination.

### ***Claim Rejections - 35 USC § 101***

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 85-110 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Claims 98-110 are drawn to a process. A process is statutory subject matter under 35 U.S.C. 101 if: (1) it is tied to a particular machine or apparatus or (2) it transforms an article to a different state or thing (In re Bilski, 88 USPQ2d 1385 Fed. Cir. 2008).

The claimed subject matter is not limited to a particular apparatus or machine. To qualify as a statutory process, the claims should require use of a machine within the steps of the claimed subject matter or require transformation of an article to a different state or thing. Insignificant extra-solution activity in the claimed subject matter will not be considered sufficient to convert a

process that otherwise recites only mental steps into statutory subject matter (In re Grams 12 USPQ2d 1824 Fed. Cir. 1989). Preamble limitations that require the claimed process to comprise machine implemented steps will not be considered sufficient to convert a process that otherwise recites only mental steps into statutory subject matter. It is noted that the instant claim 98 recites “diagonalizing the Saupe order matrix”; however, this step is not a transformation of an article to a different state or thing. It is further noted that claims 98-110 do not explicitly require that the steps of the claimed method are performed on a machine. Applicant is cautioned against introduction of new matter in an amendment. It is noted that amending step (c)(ii) to “using a magnetic nuclear resonance spectrometer” would nullify this rejection.

Claims 85-97 are drawn to computer readable medium comprising instructions. The broadest and reasonable interpretation of a claim drawn to a computer readable medium typically covers forms of non-transitory tangible media and transitory propagating signals per se in view of the ordinary and customary meaning of computer readable media (see OG Notice 1351 OG 212). As such an embodiment of these claims read on non-statutory subject matter (In re Nuijten 84 USPQ2d 1495 (2007)). Applicant may overcome the rejection by amendment of the claims to be limited to physical forms of computer readable media described in the specification (i.e. computer readable *storage* medium”.

***Priority***

Applicant cannot rely upon the foreign priority papers to currently overcome any prior art rejection below because a translation of said papers has not been made of record in accordance with 37 CFR 1.55. See MPEP § 201.15.

***Claim Rejections – 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 72-75, 77, 80-82, 85-88, 90, 93-95, 98-101, 103, 106-108 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fesik et al. (WO 97/18471) in view of Alba et al. (Progress in Nuclear Magnetic Resonance Spectroscopy 40, 2002, pages 175-197).

Fesik et al. describe a computer-implemented method and computer readable medium of measuring structural change in a protein when it is contacted with a compound (abstract; page 1, page 3; page 7; page 8, last paragraph; page 10, lines 21-28; page 21, last paragraph) comprising selecting a domain (i.e. catalytic domain of stromelysin) and providing orientation information of the domain when the protein is not in contact and in contact with the compound (page 4, last two paragraphs; page 7, lines 10-17; Figure 9), including providing atomic coordinates and using NMR spectroscopy or X-ray crystallography (page 3, lines 26-32; page 4, last three paragraphs;

page 12, last three paragraphs; page 15) and measuring structural change of the protein by a difference in the orientations (abstract; page 7, lines 10-17; Figure 9; claims 1, 3, 4). Fesik et al. describe identifying the position on the protein to which the compound is bound (page 3, first and third paragraph). Fesik et al. do not describe providing axial variations of NMR signals generated in the presence of liquid crystalline using two-dimensional TROSY NMR spectroscopy, determining Saupe order matrix elements, and diagonalizing the Saupe order matrix elements as well as variations along a  $^{15}\text{N}$  axis and a mixture of DMPC and DHPC.

Alba et al. describe providing axial variations of NMR signals generated in the presence of liquid crystalline using two-dimensional TROSY NMR spectroscopy, determining Saupe order matrix elements, and diagonalizing the Saupe order matrix elements (page 176, col. 2, last paragraph; page 179, col. 1 and 2; page 181, col. 2, first paragraph; page 183, col. 1, last paragraph to page 184, col. 2, first paragraph; page 186, col. 1, last paragraph to page 188, col. 1, second paragraph). Alba et al. describe variations along a  $^{15}\text{N}$  axis (page 178, col. 2, second paragraph; page 181, col. 1; page 186). Alba et al. describe a mixture of DMPC and DHPC (page 179).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use two-dimensional NMR spectroscopy with dipolar couplings as taught by Alba et al. in the method of Fesik et al. wherein the motivation would have been to improve the accuracy with which structures are determined, as stated by Alba et al. (page 178, col. 2, second paragraph).

Thus, Fesik et al., in view of Alba et al., make obvious claims 72-75, 77, 80-82, 85-88, 90, 93-95, 98-101, 103, 106-108.

Claims 76, 78, 83, 89, 91, 96, 102, 104, and 109 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fesik et al., in view of Alba et al. as applied to claims 72-75, 77, 80-82, 85-88, 90, 93-95, 98-101, 103, 106-108 above, and further in view of Tate et al. (Journal of Magnetic Resonance, Volume 171, 2004, pages 284-292).

Fesik et al., in view of Alba et al., describe the limitations of instant claims 72-75, 77, 80-82, 85-88, 90, 93-95, 98-101, 103, 106-108. Fesik et al. and Alba et al. do not describe the limitations of instant claims 76, 78, 83, 89, 91, 96, 102, 104, and 109.

Tate et al. describe the limitations of instant claims 76, 78, 89, 91, 102, and 104 (page 286, col. 1) and 83, 96, and 109 (i.e. 7.5%(w/v) of DMPC, DHPC, and CTAB) (page 286, col. 1, second to last paragraph).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use two-dimensional NMR spectroscopy with dipolar couplings as taught by Alba et al. in the method of Fesik et al. wherein the motivation would have been to improve the accuracy with which structures are determined, as stated by Alba et al. (page 178, col. 2, second paragraph). It would have been further obvious to determine the Saupe order matrix as taught by Tate et al. in the NMR methods of Fesik et al. and Alba et al. wherein the motivation would have been to give consistent alignment angles within an uncertainty range that accounts for experimental uncertainties and structural noises to ensure validity when determining molecular alignment angles for much larger proteins, as stated by Tate et al. (page 285, col. 2, first paragraph).

Thus, Fesik et al., in view of Alba et al. and Tate et al., make obvious claims 72-78, 80-83, 85-91, 93-96, 98-104, and 106-109.

### *Conclusion*

No claim is allowed. Claims 79 and 84 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Papers related to this application may be submitted to Technical Center 1600 by facsimile transmission. Papers should be faxed to Technical Center 1600 via the PTO Fax Center. The faxing of such papers must conform with the notices published in the Official Gazette, 1096 OG 30 (November 15, 1988), 1156 OG 61 (November 16, 1993), and 1157 OG 94 (December 28, 1993) (See 37 CFR §1.6(d)). The Central Fax Center number for official correspondence is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. If you have questions on access to the Private PAIR system, please contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you



would like assistance from a USPTO Customer Service Representative or access to the automated information system, please call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Carolyn Smith, whose telephone number is (571) 272-0721. The examiner can normally be reached Monday through Thursday from 8 A.M. to 6:30 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marjorie Moran, can be reached on (571) 272-0720.

July 6, 2010

/Carolyn Smith/  
Primary Examiner  
AU 1631